AMENDMENTS TO THE CLAIMS

1. – 15. (Cancelled)

16. (Currently amended) The method of claim 44, further comprising prior to, during, or after steps (i) and (ii) contacting said sample with ~~A method for separating one or more cells of a second type from a sample, said method comprising the steps of:~~

~~(a) introducing into one or more microfluidic channels (i) a sample comprising cells of at least a first and second type and (ii)~~ a solution that preferentially lyses cells of a second ~~the first~~ type, to cause greater lysis of cells of the second ~~first~~ type compared to cells of the first ~~second~~ type~~;~~

~~(b) contacting the product of step (a) with a microfluidic device comprising obstacles disposed in a microfluidic channel, wherein said obstacles preferentially bind said second type of cell;~~

~~(c) collecting cells bound to said obstacles, thereby producing a cell population enriched in said second type of cell;~~

~~(d) arraying said cell population enriched in said second type of cell;~~

~~(e) identifying one or more cells of said second type in said population enriched in said second type of cell; and~~

~~(f) collecting said one or more cells of said second type, thereby separating said one or more cells of said second type from said sample~~.

17. (Currently amended) The method of claim 44, further comprising after steps (i) and (ii) ~~A method for separating one or more cells of a second type from a sample, said method comprising the steps of:~~

~~(a) introducing into one or more microfluidic channels (i) a sample comprising cells of at least a first, second, and third type and (ii) a solution that preferentially lyses~~

~~cells of the first type, to cause greater lysis of cells of the first type compared to cells of the second type;~~

~~(b) contacting the product of step (a) with a microfluidic device comprising obstacles disposed in a microfluidic channel, wherein said obstacles preferentially bind said third type of cell compared to said second type of cell;~~

~~(c) collecting cells not bound to said obstacles, thereby producing a cell population enriched in said second type of cell;~~

~~(d) arraying said cell population enriched in said second type of cell;~~

~~(e) identifying one or more cells of said second type in said cell population enriched in said second type of cell; and~~

~~(f)~~ collecting ~~said~~ one or more cells of said first ~~second~~ type~~, thereby separating said one or more cells of said second type from said sample~~.

18. - 23. (Cancelled)

24. (Currently amended) The method of claim 16 ~~any one of claims 16-20~~, wherein said solution ~~in step (a)~~ comprises $NaHCO_3$ and acetazolamide.

25. (Currently amended) The method of claim 16 ~~any one of claims 16-20~~, further comprising the step, after said lysis ~~step (a)~~, of diluting the product of said lysis ~~step (a)~~ with a diluent ~~in said one or more microfluidic channels~~.

26. (Cancelled)

27. (Currently amended) The method of claim 45 ~~26~~, wherein said binding moiety comprises an anti-CD71, an anti-CD36, an anti-GPA, or an anti-CD45 antibody, or a combination thereof.

28. – 43. (Cancelled)

44. (Currently Amended) A method of producing a cell population enriched in a first type of cell larger than an adult, enucleated red blood cell, said method comprising the steps of subjecting a blood sample to (i) separation comprising contact with a microfluidic device ~~channel~~ comprising obstacles separated by gaps, so that adult, enucleated red blood cells and cells smaller than adult, enucleated red blood cells are directed in one direction and cells larger than adult, enucleated red blood cells are directed in a second direction to produce a first sample enriched in said cells larger than adult, enucleated red blood cells, and (ii) separation comprising contacting said first sample with a microfluidic device comprising obstacles that preferentially bind said first type of cell in said first sample, ~~wherein each of steps (i) and (ii) produce a sample enriched in the first type of cell,~~ thereby producing a ~~an enriched cell~~ population enriched in said first cell type.

45. (Original) The method of claim 44, wherein said obstacles are coated with a binding moiety that binds to the surface of said first type of cell.

46. (Original) The method of claim 44, wherein said first type of cell is a fetal red blood cell.

47. (Cancelled)

48. (Previously presented) The method of claim 44, wherein at least 60% of cells of said first type in said sample are bound to said obstacles of step (ii).

49. (Previously presented) The method of claim 44, wherein at least 70% of cells of said second type in said sample are not bound to said obstacles of step (ii).

50. (Previously presented) The method of claim 44, wherein said obstacles of step (ii) are ordered in a two-dimensional array.

51. - 69. (Cancelled)

70. (Currently amended) The ~~A~~ method of claim 44 ~~for separating one or more cells of a second type from a sample~~, ~~said method~~ further comprising ~~the steps of:~~

~~(a) contacting said sample with a channel comprising obstacles so that adult, enucleated red blood cells and cells smaller than adult, enucleated red blood cells are directed in one direction and cells larger than adult, enucleated red blood cells are directed in a second direction to produce a first enriched sample;~~

~~(b) contacting said first enriched sample with a device comprising obstacles comprising a binding moiety that preferentially binds cells of a first type compared to cells of said second type; and~~

~~(c)~~ releasing cells bound to said obstacles~~, thereby separating said cells from said sample~~.

71. (Currently amended) The method of claim 70, wherein said releasing ~~in step (c)~~ comprises applying a shear force or lysing said bound cells.

72. (Currently amended) The method of claim 70, further comprising arraying said cells after ~~step (c)~~ said releasing.

73. (Currently amended) The method of claim 70, further comprising analyzing the cellular contents of said cells after ~~step (c)~~ said releasing.

74. (Previously presented) The method of claim 73, wherein said analyzing comprises FISH.

75. (Previously presented) The method of claim 73, wherein said analyzing comprises nucleic acid analysis.

76. (Previously presented) The method of claim 70, wherein said first type comprises fetal cells, epithelial cells, tumor cells, stem cells, bacteria, protozoa, or fungi.

77. (Currently amended) The method of claim 70, identifying one or more cells of said first type after ~~step (c)~~ said releasing.

78. (Previously presented) The method of claim 70, wherein said binding moiety comprises an antibody.

79. (Previously presented) The method of claim 78, wherein said antibody is a fetal-cell specific, epithelial-cell specific, tumor-cell specific, stem-cell specific, bacteria specific, protozoan specific, or fungal specific antibody.

80. (Currently amended) The method of claim 70, wherein said ~~second~~ first type of cell is enriched relative to ~~comprises~~ white blood cells or adult, enucleated red blood cells.

81. (Currently amended) The ~~A~~ method of claim 44 ~~for identifying one or more cells of a second type in a sample~~, ~~said method~~ further comprising ~~the steps of:~~

~~(a) contacting said sample with a channel comprising obstacles so that adult, enucleated red blood cells and cells smaller than adult, enucleated red blood cells are directed in one direction and cells larger than adult, enucleated red blood cells are directed in a second direction to produce a first enriched sample;~~

~~(b) contacting said first enriched sample with a device comprising obstacles comprising a binding moiety, wherein said binding moiety preferentially binds cells of said second type compared to cells of a first type; and~~

~~(c)~~ staining cells bound to said obstacles to identify cells bound thereto ~~of said second type, wherein said second type is selected from the group consisting of fetal cells, epithelial cells, tumor cells, stem cells, bacteria, protozoa, and fungi~~.

82. (Currently amended) The method of claim 81, further comprising analyzing the cellular contents of said cells during or after said staining ~~step (c)~~.

83. (Previously presented) The method of claim 82, wherein said analyzing comprises nucleic acid analysis.

84. (Previously presented) The method of claim 81, wherein said staining comprises FISH.

85. (Currently amended) The method of claim 81, wherein said ~~second~~ first type comprises fetal cells, epithelial cells, or tumor cells.

86. (Currently amended) The method of claim 81, identifying one or more cells of said ~~second~~ first type during or after said staining ~~step (c)~~.

87. (Previously presented) The method of claim 81, wherein said binding moiety comprises an antibody.

88. (Previously presented) The method of claim 87, wherein said antibody is a fetal-cell specific, epithelial-cell specific, tumor-cell specific, stem-cell specific, bacteria specific, protozoan specific, or fungal specific antibody.

89. (Currently amended) The method of claim 81, wherein said ~~first~~ second type comprises white blood cells or red blood cells.

90. - 116. (Cancelled)

117. (Previously presented) The method of claim 44, wherein the preferential binding in step (ii) is reversible.

118. (Previously presented) The method of claim 117, wherein said reversible preferential binding is actuated by a field.

119. (New) The method of claim 44, wherein, in step (i), cells in said blood sample are moved across their flow lines so that adult, enucleated red blood cells and cells smaller than adult, enucleated red blood cells are directed in one direction and cells larger than adult, enucleated red blood cells are directed in said second direction.

120. (New) The method of claim 119, wherein said flow lines of said cells in said blood sample are laminar flow lines.

121. (New) A method of producing a cell population enriched in a first type of cell larger than an adult, enucleated red blood cell, said method comprising the steps of subjecting a blood sample to (i) separation comprising contacting said blood sample with a microfluidic device comprising obstacles that preferentially bind said first type of cell in said first sample to produce a first sample enriched in said first type of cell, and (ii) separation comprising contacting said first sample with a microfluidic device comprising obstacles separated by gaps, so that adult, enucleated red blood cells and cells smaller than adult, enucleated red blood cells are directed in one direction and cells larger than adult, enucleated red blood cells are directed in a second direction, thereby producing a population enriched in said first type of cell.

122. (New) The method of claim 121, wherein, in step (i), cells in said blood sample are moved across their flow lines so that adult, enucleated red blood cells and cells smaller than adult, enucleated red blood cells are directed in one direction and cells larger than adult, enucleated red blood cells are directed in said second direction.

123. (New) The method of claim 122, wherein said flow lines of said cells in said blood sample are laminar flow lines.

124. (New) The method of claim 121, wherein said first type of cell is a fetal red blood cell.

125. (New) The method of claim 121, further comprising arraying said cells after step (ii).

126. (New) The method of claim 121, further comprising analyzing the cellular contents of said cells after step (ii).

127. (New) The method of claim 126, wherein said analyzing comprises FISH.

128. (New) The method of claim 126, wherein said analyzing comprises nucleic acid analysis.

129. (New) The method of claim 121, wherein said first type comprises fetal cells, epithelial cells, tumor cells, stem cells, bacteria, protozoa, or fungi.

130. (New) The method of claim 121, identifying one or more cells of said first type after step (ii).